SECTION JI. (AMENDMENTS TO THE CLAIMS)

A listing of claims 1-60 of the present application, as amended/added herein with markings showing changes made, is provided below:

1-28. (Cancelled).

29. (Currently amended) A layered structure comprising:

a substrate having an upper surface of single crystalline Si, and

a layer of SiC over said upper surface,

said ~~Si/SiC~~ SiC layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration of more than 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å,

and wherein the oxygen in said SiC layer is less than 1×10^{17} atoms/cc.

30. (Original) The layered structure of claim 29 wherein said silicon carbon alloy is single crystalline.

31. (Original) The layered structure of claim 29 wherein said silicon carbon alloy is polycrystalline.

32. (Currently amended) The layered structure of claim 29 further including a layer of Si over said layer of SiC, said ~~SiC/Si layer~~ SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1×10^{17} atoms/cc.

33. (Currently amended) The layered structure of claim 29 wherein said layer of SiC includes a p-type dopant in the range from about 1×10^{18} to about 1×10^{21} atoms/cc

and wherein said SiC layer with said p-type dopant ~~profile~~ can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C

34. (Original) The layered structure of claim 29 wherein said layer of SiC includes a n-type dopant in the range from about 1×10^{18} to about 1×10^{21} atoms/cc.

35. (Currently amended) The layered structure of claim 33 further including a layer of Si over said layer of p-type doped SiC, said p-type doped ~~SiC/Si~~ SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1×10^{17} atoms/cc.

36. (Currently amended) The layered structure of claim 35 wherein said ~~p-type doped SiC/Si layer~~ interface defined by said p-type doped SiC layer and said Si layer has ~~having~~ an abrupt change in dopant concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å.

37. (Currently amended) The layered structure of claim 34 further including a layer of Si over said layer of n-type doped SiC, said n-type doped ~~SiC/Si~~ SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1×10^{17} atoms/cc.

38. (Currently amended) The layered structure of claim 37 wherein said ~~n-type doped SiC/Si layer~~ interface defined by said n-type doped SiC layer and said Si layer has ~~having~~ an abrupt change in dopant concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å.

39. (Currently amended) The layered structure of claim 29 further including a layer of SiGe over said layer of SiC, said ~~SiC/SiGe~~ SiC layer and said SiGe layer define an interface

having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10^{17} atoms/cc.

40. (Currently amended) The layered structure of claim 33 further including a layer of SiGe over said layer of p-type doped SiC, said p-type doped ~~SiC/Si~~ SiC layer and said SiGe layer define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10^{17} atoms/cc.

41. (Currently amended) The layered structure of claim 34 further including a layer of SiGe over said layer of n-type doped SiC, said n-type doped ~~SiC/Si-Ge~~ SiC layer and said SiGe layer define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10^{17} atoms/cc.

42. (Withdrawn) A layered structure comprising:

a substrate having an upper surface of single crystalline Si, and

a layer of SiGeC over said upper surface,

said ~~Si/SiGeC~~ SiGeC layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A,

and wherein the oxygen in said SiGeC layer is less than 1 x 10^{17} atoms/cc.

43. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is single crystalline.

44. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is polycrystalline.

45. (Withdrawn) The layered structure of claim 42 further including a layer of Si over said layer of SiGeC, said ~~SiGeC/Si~~ SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10^{17} atoms/cc.

46. (Withdrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a p-type dopant in the range from about 1 x 10^{18} to about 1 x 10^{21} atoms/cc and wherein said SiGeC layer with said p-type dopant ~~profile~~ can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C.

47. (Withdrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a n-type dopant in the range from about 1 x 10^{18} to about 1 x 10^{21} atoms/cc.

48. (Withdrawn) The layered structure of claim 46 further including a layer of Si over said layer of p-type doped SiGeC, said p-type doped ~~SiGeC/Si~~ SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10^{17} atoms/cc.

49. (Withdrawn) The layered structure of claim 48 wherein said ~~p-type doped SiGeC/Si layer~~ interface defined by said p-type doped SiGeC layer and said Si layer has ~~having~~ an abrupt change in dopant concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A.

50. (Withdrawn) The layered structure of claim 47 further including a layer of Si over said layer of n-type doped SiGeC, said n-type doped ~~SiGeC/Si~~ SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10^{17} atoms/cc.

51. (Withdrawn) The layered structure of claim 50 wherein said ~~n-type doped SiGeC/Si layer~~ interface defined by said n-type doped SiGeC layer and said Si layer has ~~having~~ an abrupt change in dopant concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A.

52. (Withdrawn) The layered structure of claim 42 further including a layer of SiGe over said layer of SiGeC, said ~~SiGeC/SiGe~~ SiGeC layer and said SiGe layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1×10^{17} atoms/cc.

53. (Withdrawn) The layered structure of claim 46 further including a layer of SiGe over said layer of p-type doped SiGeC, said p-type doped ~~SiGeC/SiGe~~ SiGeC layer and said SiGe layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1×10^{17} atoms/cc.

54. (Withdrawn) The layered structure of claim 47 further including a layer of SiGe over said layer of n-type doped SiGeC, said n-type doped ~~SiGeC/SiGe~~ SiGeC layer and said SiGe layer define an interface having an abrupt change in C concentration above 1×10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1×10^{17} atoms/cc.

55. (Withdrawn) A layered structure comprising:

a substrate having an upper surface of single crystalline Si, and

a multitude of layers of materials selected from the group consisting of Si, SiGe, SiC, and SiGeC over said upper surface, wherein said multitude of layers comprise at least one layer of SiC or SiGeC.

said ~~Si/SiC, Si/Si:GeC, SiGe/SiC and SiGe/SiGeC layer~~ multitude of layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration above 1 x 10^{18} atoms/cc over a layer thickness in the range from about 6 A to about 60 A,

and wherein the oxygen in ~~said~~ any carbon containing layer among said multitude of layers is less than 1 x 10^{17} atoms/cc.

56. (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are single crystalline.

57. (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are polycrystalline.

58. (Withdrawn) The layered structure of claim 55 wherein said carbon containing ~~layers include~~ layer includes a p-type dopant in the range from about 1 x 10^{18} to about 1 x 10^{21} atoms/cc and wherein said carbon containing layer with said p-type dopant ~~profile~~ can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C.

59. (Withdrawn) The layered structure of claim 55 wherein said carbon containing ~~layers include~~ layer includes a n-type dopant in the range from about 1 x 10^{18} to about 1 x 10^{21} atoms/cc.

60. (New) A layered structure comprising:

a substrate having an upper surface of single crystalline Si,

one or more layers of materials selected from the group consisting of Si, SiGe, SiC, and SiGeC over said upper surface, wherein said one or more material layers comprise at least one layer of SiC or SiGeC, and

said one or more material layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration of more than 1×10^{18} atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å,

and wherein the oxygen in any carbon-containing material layer among said one or more material layers is less than 1×10^{17} atoms/cc.